CCD/339
10 August 1971
ENGLISH
Original: RUSSIAN

CONFERENCE OF THE COMMITTEE ON DISARMAMENT

HUNGARY, MONGOLIA AND POLAND

Working paper submitted by the delegations of the Hungarian People's Republic, the Mongolian People's Republic and the Polish People's Republic: draft Security Council resolution in connexion with the draft Convention on the prohibition of the development, production and stockpiling of bacteriological (biological) weapons and toxins and on their destruction

"The Security Council,

Highly appreciating the desire of a large number of States to subscribe to the Convention on the prohibition of the development, production and stockpiling of bacteriological (biological) weapons and toxins and on their destruction,

Bearing in mind that under article .... of the Convention the States Parties shall have the right to lodge complaints with the Security Council together with a request for their consideration by the Council,

Recognizing the need for the adoption of appropriate measures with a view to ensuring the observance of the obligations contained in the Convention,

Taking into consideration the desire of the States Parties to co-operate with the Security Council for the purpose of ensuring the strict observance of the obligations contained in the Convention,

1. Declares its readiness:

- To consider immediately any complaints lodged under article .... of the Convention,

- To take all necessary measures for the investigation of a complaint,

- To inform the States Parties to the Convention of the result of the investigation;

2. Calls upon all States Parties to the Convention to co-operate for the purpose of implementing the provisions of this resolution."

GE.71-19046
17-18676

CONFERENCE OF THE COMMITTEE ON DISARMAMENT

CCD/340
12 August 1971
Original: ENGLISH

PAKISTAN

Working paper suggesting some provisions of a treaty banning underground nuclear weapon tests

The relationship between an underground test ban and peaceful nuclear explosions has been recognized and often emphasized. In this context two considerations have to be borne in mind: first an underground test ban should not deprive the signatories of the benefits which may be derived from peaceful nuclear explosions. Second, and more important, an exception for peaceful nuclear explosions must not serve as a loophole permitting either the proliferation of nuclear weapons or as a means of conducting explosions for military purposes. This need arises from the fact that there is no difference between nuclear weapons and the so-called peaceful nuclear explosive devices. Hence a clause permitting peaceful nuclear explosions should be so worded that it cannot be misconstrued to mean that it permits the conducting of peaceful nuclear explosions by non-nuclear-weapon States themselves. Accordingly, it is proposed that an underground test ban treaty should include, as in the Nuclear Non-Proliferation Treaty, two kinds of provisions: one for the nuclear-weapon States, the other for the non-nuclear-weapon States.

2. As regards the nuclear-weapon States, the treaty should prohibit all underground nuclear weapon test explosions. They may, however, be permitted to conduct explosions which are carried out for construction or peaceful purposes only and which take place in conformity with an international agreement to be negotiated separately, either as an independent agreement or as a protocol to a comprehensive test ban.

3. As regards non-nuclear-weapon States, the treaty should include a separate provision which would prohibit all underground explosions whether they are in the category of "weapon tests" or not. In other words, non-nuclear-weapon States must not conduct any kind of nuclear explosions whatsoever including peaceful nuclear explosions. Non-nuclear-weapon States may obtain the benefit of peaceful explosions conducted for them or on their behalf in accordance with the provisions of the international agreement referred to in paragraph 2 hereof.

GE.71-19056
71-18679

4. Lastly, as it has been suggested that separate provisions should be included for nuclear-weapon and non-nuclear-weapon States, the category of such States has to be defined. It is, therefore, proposed that the following provision as the second sentence of paragraph 3 of Article IX of the Nuclear-Non-Proliferation Treaty, should be included in the proposed treaty:

"For the purpose of this Treaty, a nuclear-weapon State is one which has manufactured and exploded a nuclear weapon or other nuclear explosive device prior to 1st January 1967".

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CONFERENCE OF THE COMMITTEE ON DISARMAMENT

CCD/341
17 August 1971
Original: ENGLISH

BRAZIL, BURMA, ETHIOPIA, INDIA, MEXICO, MOROCCO, NIGERIA, PAKISTAN, SWEDEN, THE UNITED ARAB REPUBLIC AND YUGOSLAVIA

Working paper containing suggestions on desirable changes to the revised draft convention (CCD/337*) and the draft convention (CCD/333*) on the prohibition of the development, production and stockpiling of bacteriological (biological) and toxin weapons and on their destruction

Pursuant to the Resolution 2603 A (XXIV) of the General Assembly of the United Nations regarding the use of chemical and bacteriological (biological) weapons, as well as the Joint Memorandum (CCD/310) of the Group of Twelve members of the Conference of the Committee on Disarmament concerning the basic approach in regard to the treatment of the prohibition of the development, production and stockpiling of chemical and bacteriological (biological) weapons, which was commended by the General Assembly of the United Nations in its Resolution 2662 (XXV), and in view of the present state of negotiations in the Conference of the Committee on Disarmament, whereby the prohibition of only bacteriological (biological) and toxin weapons and their destruction seems to be now possible, the eleven countries submit the following suggestions for consideration and acceptance by the Conference of the Committee on Disarmament. However they take no stand at the present stage of negotiations on the need and desirability for any further suggestions that might be submitted by its members, individually or jointly.

A. - Preamble

1. In paragraph one:
   (i) add the words "chemical and" before the word "bacteriological".
   (ii) delete the words "and toxins intended for use as weapons".
2. In paragraph two:
   (i) add the words "chemical and" before the word "bacteriological".
   (ii) delete the words "and toxins".
3. In paragraph three:
   (i) add the words "chemical and" before the word "bacteriological".
   (ii) delete the words "immense", "urgent" and "and toxins".
4. In paragraph five:
   (i) add the words "chemistry and" before the word "bacteriology".

GE.71-19113
71-18664

5. Redraft paragraph six so that it reads as follows:

"Recognizing that the application of scientific knowledge in the field of chemistry and bacteriology (biology) for weapons purposes would increase the risk of the use of chemical and bacteriological (biological) weapons".

6. Move the paragraphs 8, 9 and 10 at the beginning of the preamble, so that they become paragraphs 1, 2 and 3 respectively.

7. Redraft paragraph eleven so that it reads as follows

"Recognizing that an agreement on the elimination of bacteriological (biological) and toxin weapons represents a first possible step towards the achievement of agreement on effective measures for complete prohibition of the development, production and stockpiling of chemical and bacteriological (biological) weapons, and determined to continue negotiations to that end".

8. Insert a new paragraph twelve which would read as follows:

"Affirming the principle that a substantial portion of the savings derived from measures in the field of disarmament should be devoted to promoting economic and social development, particularly in the developing countries".

B. - Operative part

9. At the end of Article V add the following paragraph:

Consultation and co-operation pursuant to this Article may also be undertaken through appropriate international procedures within the framework of the United Nations and in accordance with its Charter.

10. Redraft Article VIII so that it reads as follows:

"Each State Party to this Convention accepts the principle of complete prohibition of chemical weapons and undertakes to continue negotiations in good faith with a view to reaching early agreement on prohibition of their development, production and stockpiling and on their destruction, and on appropriate measures concerning equipment and means of delivery specifically designed for the production or use of chemical agents for weapons purposes".

11. At the end of Para. 1 of Article IX add following sentence:

"Parties to the Convention shall also co-operate in contributing individually or together with other States or international organizations to the further development and application of scientific discoveries in the field of bacteriology (biology) for prevention of disease, or for other peaceful purposes.

CONFERENCE OF THE COMMITTEE ON DISARMAMENT

CCD/342
19 August 1971

ENGLISH
Original: SPANISH

MEXICO

Working paper on some basic facts relating to the Treaty for the Prohibition of Nuclear Weapons in Latin America (Treaty of Tlatelolco) and its Additional Protocol II

1. On 6 July 1971, document A/8336 (also distributed under the symbol S/10250), containing the text of the reply from the Supreme Soviet of the USSR to the Senate of the United Mexican States, dated 4 January 1971, "regarding the signature and ratification of Additional Protocol II of the Treaty for the Prohibition of Nuclear Weapons in Latin America", was circulated at United Nations Headquarters at the request of the Permanent Representative of the Union of Soviet Socialist Republics to the United Nations.

2. The document in question was circulated under the item of the twenty-sixth session's agenda entitled "Status of the implementation of General Assembly resolution 2666 (XXV)[1/] concerning the signature and ratification of Additional Protocol II of the Treaty for the Prohibition of Nuclear Weapons in Latin America (Treaty of Tlatelolco)". It would appear from an analysis of its contents that the Soviet Government is still reluctant to comply with the repeated appeals of the General Assembly to the nuclear Powers to sign and ratify without further delay Additional Protocol II of the Treaty for the Prohibition of Nuclear Weapons in Latin America (Treaty of Tlatelolco).

3. Since this is a question which the Conference of the Committee on Disarmament might well have to deal with in the not too distant future, the item on nuclear-weapon-free zones being still on its agenda, it is fitting to draw the Committee's attention to some basic facts which must be taken into consideration if the question is to appear in its proper perspective. The purpose of this working paper is to sum up the most important of these basic facts.

1/ The full text of the resolution is reproduced in annex II.

GE.71-19122
71-18448

1. Position of the Mexican Senate

4. The reasons which led the Mexican Senate to address an appeal to the legislative bodies of all States for whose signature and ratification the Treaty of Tlatelolco or one of the additional protocols[2/] thereof are open are set out in the last paragraph of the appeal in the following words:

> "From the foregoing it may be seen that the lofty purposes inspiring the Treaty of Tlatelolco have the fervent and total support of the countries of the world and that its provisions have become the expression not of mere aspirations but of a will which is asserting itself at an accelerating pace and with which, we are convinced, no country on earth can fail to associate itself. The ratification and implementation of this instrument by all the countries of Latin America, and of its additional protocols by all nuclear-weapon States or States having territories for which, de jure or de facto, they are internationally responsible - whether or not they are Members of the United Nations - constitute at this time in the world's history, we firmly believe, a moral imperative which mankind insists must be fulfilled in the interests of a creative peace which will be conducive to further achievements on the path of progress and happiness for all peoples".

2. Extent of obligations assumed under the Treaty of Tlatelolco

5. The extent of the obligations assumed under the Treaty of Tlatelolco with a view to implementing the régime of total absence of nuclear weapons established in the Treaty is exactly the same for Mexico as for all other States Parties to the instrument.

6. Article 1 of the Treaty, in which these obligations are specified, reads as follows:

> "1. The Contracting Parties hereby undertake to use exclusively for peaceful purposes the nuclear material and facilities which are under their jurisdiction, and to prohibit and prevent in their respective territories:
>
> "(a) The testing, use, manufacture, production or acquisition by any means whatsoever of any nuclear weapons, by the Parties themselves, directly or indirectly, on behalf of anyone else or in any other way; and
>
> "(b) The receipt, storage, installation, deployment and any form of possession of any nuclear weapon, directly or indirectly, by the Parties themselves, by anyone on their behalf or in any other way.
>
> "2. The Contracting Parties also undertake to refrain from engaging in, encouraging or authorizing, directly or indirectly, or in any way participating in the testing, use, manufacture, production, possession or control of any nuclear weapon."

2/ For the status of the Treaty and its two Protocols on 1 August 1971, see annex I.

3. Extent of obligations assumed under Additional Protocol II

7. Nuclear-weapon States which, by signing and ratifying Additional Protocol II of the Treaty of Tlatelolco become Parties to it, assume the following obligations:

(a) To respect, "in all its express aims and provisions" the "statute of denuclearization of Latin America in respect of warlike purposes, as defined, delimited and set forth in" the Treaty of Tlatelolco;

(b) "Not to contribute in any way to the performance of acts involving a violation of the obligations of article 1 of the Treaty in the territories to which the Treaty applies"; and

(c) "Not to use or threaten to use nuclear weapons against the Contracting Parties of the Treaty".

8. After expressly mentioning these obligations, the General Assembly, in its resolution 2666 (XXV), adopted on 7 December 1970 by 104 votes to none, affirmed its conviction that they "are entirely in conformity with the general obligations assumed under the Charter of the United Nations, which every Member of the Organization has solemnly undertaken to fulfil in good faith, as set forth in Article 2 of the Charter".

4. Some responsible opinions on the Treaty of Tlatelolco

9. (a) In its resolution 2286 (XXII) of 5 December 1967, the United Nations General Assembly stated that it:

> "Welcomes with special satisfaction the Treaty for the Prohibition of Nuclear Weapons in Latin America, which constitutes an event of historic significance in the efforts to prevent the proliferation of nuclear weapons and to promote international peace and security and which at the same time establishes the right of Latin American countries to use nuclear energy for demonstrated peaceful purposes in order to accelerate the economic and social development of their peoples."

(b) In its resolution B of 27 September 1968, the Conference of Non-Nuclear-Weapon States observed that:

> "the Treaty for the Prohibition of Nuclear Weapons in Latin America, also known as the Treaty of Tlatelolco, has already established a nuclear-weapon free zone comprising territories densely populated by man".

(c) In his address delivered at the opening meeting of the first session of the General Conference of the Organization for the Prohibition of Nuclear Weapons in Latin America (OPANAL), the Secretary-General of the United Nations said, inter alia, the following:

"In a world that all too often seems dark and foreboding, the Treaty of Tlatelolco will shine as a beacon light. It is a practical demonstration to all mankind of what can be achieved if sufficient dedication and the requisite political will exist.

"The Treaty of Tlatelolco is unique in several respects.... The Treaty of Tlatelolco is unique in that it applies to an important inhabited area of the earth. It is also unique in that the Agency which is being established at this session will have the advantage of a permanent and effective system of control with a number of novel features. In addition to applying the safeguards system of the International Atomic Energy Agency, the régime under the Treaty also makes provision for special reports and inquiries and, in cases of suspicion, for special inspections. There is embodied in your Treaty a number of aspects of the system known as 'verification-by-challenge', which is one of the more hopeful new concepts introduced into the complicated question of verification and control.

"The Treaty of Tlatelolco preceded the Treaty for the Non-Proliferation of Nuclear Weapons by more than a year and exceeds it in the scope of its prohibitions and its control features. Both Treaties have a similar goal, but the former Treaty goes beyond the latter in also prohibiting the use or threat of use of nuclear weapons in the area of the nuclear-free zone....

"Under the safeguards and guarantees provided by the Treaty of Tlatelolco and by the operations of the Agency, nuclear energy will be used for exclusively peaceful purposes in the countries within the zone and its benefits will be devoted solely towards the economic development and social progress of your people. Thus, the States members of OPANAL will take the lead in demonstrating to the world that nuclear energy will be, as it should be, a great boon to mankind and not the instrument of its doom.

"The States of Latin America, which also include the States of the Caribbean Sea, have laboured hard and built well in erecting the edifice of the Agency for the Prohibition of Nuclear Weapons in Latin America. Perhaps history will record that they, too, 'builded better than they knew'. And now OPANAL has come to life. I am confident that it has the good wishes of the Members of the United Nations. As the Agency proceeds with its work for security, for peace and for progress, I feel sure it will continue to have the encouragement and support of the United Nations. Under the Agency's charter - the Treaty of Tlatelolco - you have provided for close links with the United Nations. It is my hope that in the years to come these links will be forged ever stronger for the mutual benefit of both organizations in their common cause."

(d) On the same occasion, the Director-General of the International Atomic Energy Agency said the following:

"I am honoured to be invited to be present on this important occasion, when for the first time an international body has been created specifically to ensure compliance with a Treaty under which parties to the Treaty solemnly pledge to use nuclear energy exclusively for peaceful purposes, and to keep an entire sub-continent free from nuclear weapons.

"It is also the first meeting of a regional grouping that has accepted the application of safeguards by another organization on their nuclear activities.

"Although the concept of establishing a nuclear-weapon-free zone is not new, the creation of the Agency for the Prohibition of Nuclear Weapons in Latin America is the first tangible realization of such an ideal. With it the aspirations of the people of Latin America for security and the prospect of wider and more productive applications of atomic energy for peaceful purposes has come nearer to fulfilment....

"The Treaty of Tlatelolco might be regarded as the first multilateral treaty in the field of nuclear disarmament which provides for the application of an institutionalized and international control system and as such represents a decisive step forward in the recognition and acceptance of international safeguards."

5. Attitude of the United Nations and the Conference of Non-Nuclear-Weapon States to signature and ratification of Additional Protocol II

10. The General Assembly of the United Nations has adopted three consecutive resolutions, and the Conference of Non-Nuclear-Weapon States one, urging the nuclear Powers to sign and ratify Additional Protocol II of the Treaty of Tlatelolco.

11. The relevant provisions of these resolutions, which were adopted without a single opposing vote, are:

(a) Operative paragraph 4 of resolution 2286 (XXII) of 5 December 1967, in which the General Assembly:

"Invites Powers possessing nuclear weapons to sign and ratify Additional Protocol II of the Treaty as soon as possible";

(b) Paragraphs 1 and 2 of section II of resolution B of 27 September 1968, in which the Conference of Non-Nuclear-Weapon States:

"1. Regrets the fact that not all the nuclear-weapon States have yet signed Additional Protocol II of the Treaty of Tlatelolco;

"2. Urges the nuclear-weapon Powers to comply fully with paragraph 4 of resolution 2286 (XXII), adopted by the United Nations General Assembly on 5 December 1967";

(c) The operative paragraph of resolution 2456 B (XXIII) of 20 December 1968, in which the General Assembly:

"Reiterates the recommendation contained in resolution B of the Conference of Non-Nuclear-Weapon States, concerning the establishment of nuclear-weapon-free zones, and especially the urgent appeal for full compliance by the nuclear-weapon Powers with paragraph 4 of General Assembly resolution 2286 (XXII) of 5 December 1967, in which the Assembly invited Powers possessing nuclear weapons to sign and ratify as soon as possible Additional Protocol II of the Treaty for the Prohibition of Nuclear Weapons in Latin America";

(d) Operative paragraphs 1, 2 and 3 of resolution 2666 (XXV) of 7 December 1970, in which the General Assembly:

"1. Reaffirms the appeals it has addressed to the nuclear-weapon States, in its resolutions 2286 (XXII) and 2456 B (XXIII), to sign and ratify Additional Protocol II of the Treaty for the Prohibition of Nuclear Weapons in Latin America (Treaty of Tlatelolco) as soon as possible and urges them to avoid further delay in the fulfilment of such appeals;

"2. Notes with satisfaction that one of those States has already signed and ratified the Protocol and that another has signed it and is now actively engaged in the ratification process;

"3. Deplores that not all nuclear-weapon States have as yet signed the Protocol".

6. Need for Additional Protocol II

12. With reference to the question whether the co-operation of the nuclear-weapon Powers in respect of the Treaty of Tlatelolco should take the form of formal acceptance of the commitments specified in Additional Protocol II or merely of unilateral declarations, the General Assembly's appeals mentioned in the previous section of this memorandum show clearly that the Assembly is categorically in favour of the first alternative.

13. To this should be added the fact that, as the General Assembly noted in its resolution 2666 (XXV) of 7 December 1970, the Conference of Non-Nuclear-Weapon States, after expressing the conviction in its resolution B that "for the maximum effectiveness of any treaty establishing a nuclear-weapon-free zone, the co-operation of the nuclear-weapon States is necessary", emphasized, in 1968, that "such co-operation should take the form of commitments likewise undertaken in a formal international instrument which is legally binding, such as a treaty, convention or protocol".

14. It is also pertinent in connexion with this point to quote the very recent statement, of 6 May 1971, made at the Conference of the Committee on Disarmament by the respresentative of the Soviet Union who, referring to the draft treaties which the Committee is considering in connexion with the item on the prohibition of chemical and biological weapons, said at the Committee's 514th meeting:

"On numerous occasions the Soviet delegation has stated that unilateral declarations cannot achieve the same purpose as international agreements. In this respect we fully support the statement made by the representatives of Sweden, Mrs. Myrdal, to the effect that --

'... unilateral decisions can be no substitute for internationally-binding agreements. ... And it is, of course, preferable to arrive at a state of affairs in which we shall have an international treaty so that all renunciations will have the same and, we hold, maximum coverage'."

7. Importance of the signature and ratification of Additional Protocol II

15. The importance which the United Nations attaches to compliance with the repeated appeals by the General Assembly that the nuclear Powers should sign and ratify Additional Protocol II "as soon as possible" is demonstrated both by the fact that in its latest resolution - resolution 2666 (XXV) - the Assembly, in words used in exceptional cases only, urged them "to avoid further delay in the fulfilment of such appeals" and, in particular, by the fact that the resolution itself contains two decisions, those in operative paragraphs 4 and 5, the texts of which read as follows:

"4. Decides to include in the provisional agenda of its twenty-sixth session an item entitled 'Status of the implementation of General Assembly resolution 2666 (XXV) concerning the signature and ratification of Additional Protocol II of the Treaty for the Prohibition of Nuclear Weapons in Latin America (Treaty of Tlatelolco)';

"5. Requests the Secretary-General to arrange for transmittal of the present resolution to the nuclear-weapon States and to inform the General Assembly at its twenty-sixth session of any measure adopted by them in order to implement it."

Annex I

STATUS OF THE TREATY FOR THE PROHIBITION OF NUCLEAR WEAPONS IN LATIN AMERICA (TREATY OF TLATELOLCO) AND ITS TWO ADDITIONAL PROTOCOLS AS AT 1 AUGUST 1971

A. Treaty

1. Signatures

Bolivia	14 February 1967
Chile	14 February 1967
Colombia	14 February 1967
Costa Rica	14 February 1967
Ecuador	14 February 1967
El Salvador	14 February 1967
Guatemala	14 February 1967
Haiti	14 February 1967
Honduras	14 February 1967
Mexico	14 February 1967
Panama	14 February 1967
Peru	14 February 1967
Uruguay	14 February 1967
Venezuela	14 February 1967
Nicaragua	15 February 1967
Paraguay	26 April 1967
Brazil	9 May 1967
Trinidad and Tobago	27 June 1967
Dominican Republic	28 July 1967
Argentina	27 September 1967
Jamaica	26 October 1967
Barbados	18 October 1968

2. Ratifications

*Mexico	20 September 1967
Brazil	29 January 1968
*El Salvador	22 April 1968
*Dominican Republic	14 June 1968
*Uruguay	20 August 1968
*Honduras	23 September 1968
*Nicaragua	24 October 1968
*Ecuador	11 February 1969
*Bolivia	18 February 1969
*Peru	4 March 1969
*Paraguay	19 March 1969
*Barbados	25 April 1969
*Haiti	23 May 1969
*Jamaica	26 June 1969
*Costa Rica	25 August 1969
*Guatemala	6 February 1970
*Venezuela	23 March 1970
Trinidad and Tobago	5 December 1970
*Panama	11 June 1971

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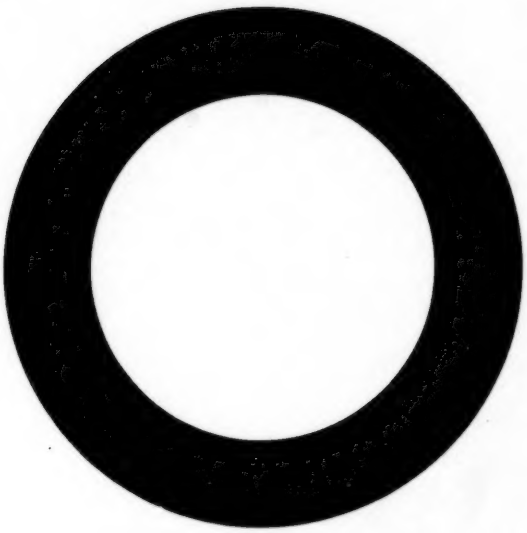
*/ States which deposited at the same time as their respective instruments of ratification a declaration by which, in exercise of the option given them under article 28, paragraph 2 of the Treaty, they waived all of the requirements laid down in paragraph 1 of that article; consequently, so far as they are concerned, the Treaty has already entered into force.

B. Additional Protocol I

States to which the Protocol is open	Signatures	Ratifications
United Kingdom of Great Britain and Northern Ireland	20 December 1967	11 December 1969
Kingdom of the Netherlands	15 March 1968	26 July 1971
United States of America		
France		

C. Additional Protocol II

United Kingdom of Great Britain and Northern Ireland	20 December 1967	11 December 1969
United States of America	1 April 1968	12 May 1971
France		
People's Republic of China		
Union of Soviet Socialist Republics		



Annex II

RESOLUTION 2666 (XXV).

STATUS OF THE IMPLEMENTATION OF GENERAL ASSEMBLY RESOLUTION 2456 B (XXIII) CONCERNING THE SIGNATURE AND RATIFICATION OF ADDITIONAL PROTOCOL II OF THE TREATY FOR THE PROHIBITION OF NUCLEAR WEAPONS IN LATIN AMERICA (TREATY OF TLATELOLCO)

The General Assembly,

Recalling its resolution 1911 (XVIII) of 27 November 1963, in which it expressed its confidence that the States that possess nuclear weapons would give their full co-operation for the effective realization of the initiative aimed at the military denuclearization of Latin America,

Recalling also its resolution 2286 (XXII) of 5 December 1967, in which it welcomed with special satisfaction the Treaty for the Prohibition of Nuclear Weapons in Latin America (Treaty of Tlatelolco) and declared that the Treaty constituted an event of historic significance in the efforts to prevent the proliferation of nuclear weapons and to promote international peace and security,

Bearing in mind that the Treaty has an Additional Protocol II, which was opened for signature by States possessing nuclear weapons on 14 February 1967,

Noting that the Conference of Non-Nuclear-Weapon States, in its resolution B, expressed the conviction that, for the maximum effectiveness of any treaty establishing a nuclear-weapon-free zone, the co-operation of the nuclear-weapon States is necessary and that such co-operation should take the form of commitments likewise undertaken in a formal international instrument which is legally binding, such as a treaty, convention or protocol,

Considering that accession to that Protocol only entails the following obligations for the nuclear-weapon States:

(a) To respect, in all its express aims and provisions the statute of denuclearization of Latin America in respect of warlike purposes, as defined, delimited and set forth in the Treaty of Tlatelolco,

(b) Not to contribute in any way to the performance of acts involving a violation of the obligations of article 1 of the Treaty in the territories to which the Treaty applies,

(c) Not to use or threaten to use nuclear weapons against the contracting parties of the Treaty,

Convinced that these obligations are entirely in conformity with the general obligations assumed under the Charter of the United Nations, which every Member of the Organization has solemnly undertaken to fulfil in good faith, as set forth in Article 2 of the Charter,

Noting that, despite the appeals that the General Assembly has addressed to them on two occasions, in resolutions 2286 (XXII) of 5 December 1967 and 2456 B (XXIII) of 20 December 1968, and the appeals they have received from the Conference of Non-Nuclear-Weapon States, in resolution B, and from the General Conference of the Agency for the Prohibition of Nuclear Weapons in Latin America, in resolution 1 (I), only two of the States that possess nuclear weapons have so far signed Additional Protocol II and only one has ratified it,*/

Noting also that the Treaty of Tlatelolco, which has been signed by twenty-two Latin American States, is already in force for sixteen of them,**/

Bearing in-mind the repeatedly stated declarations of the nuclear-weapon States to the effect that nuclear-weapon-free zones established on the initiative of the States within the zone should be supported,

Noting that the Treaty of Tlatelolco is the only one it has been possible to conclude for the establishment of such a zone in a densely populated area and that, as a result of the Treaty, there already exists a statute of total absence of nuclear weapons covering an area of 6.6 million square kilometres with a population of approximately 117 million inhabitants,

Noting also that the Agency for the Prohibition of Nuclear Weapons in Latin America has been duly established in conformity with the Treaty and became operative on 2 September 1969,

1. Reaffirms the appeals it has addressed to the nuclear-weapon States, in its resolutions 2286 (XXII) and 2456 B (XXIII), to sign and ratify Additional Protocol II of the Treaty for the Prohibition of Nuclear Weapons in Latin America (Treaty of Tlatelolco) as soon as possible and urges them to avoid further delay in the fulfilment of such appeals;

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*/ Subsequent to the adoption of this resolution, on 12 August 1971, the United States of America ratified the Protocol, thereby increasing to two the number of nuclear Powers for which the Protocol is in force.

**/ On 11 June 1971, Panama ratified the Treaty, waiving all requirements, so that the States Parties now number 17.

2. Notes with satisfaction that one of those States has already signed and ratified the Protocol and that another has signed it and is now actively engaged in the ratification process;

3. Deplores that not all nuclear-weapon States have as yet signed the Protocol;

4. Decides to include in the provisional agenda of its twenty-sixth session an item entitled "Status of the implementation of General Assembly resolution 2666 (XXV) concerning the signature and ratification of Additional Protocol II of the Treaty for the Prohibition of Nuclear Weapons in Latin America (Treaty of Tlatelolco)";

5. Requests the Secretary-General to arrange for transmittal of the present resolution to the nuclear-weapon States and to inform the General Assembly at its twenty-sixth session of any measure adopted by them in order to implement it.

CONFERENCE OF THE COMMITTEE ON DISARMAMENT

CCD/343
24 August 1971
Original: English

JAPAN

Working paper on a biological approach to the question of verification on the prohibition of chemical weapons

- Organophosphorus chemical agents -

As the SIPRI Report "The Problem of Chemical and Biological Warfare, Part IV Verification (February 1970)" has described, nerve agent plants are usually kept air tight and operated at a negative pressure. Furthermore, critical chemical reaction equipment is handled by remote control devices, and so forth, then plants are designed to avoid exposure of the chemical agent to workers. Thus, the safety facilities are presumably completely organized. It is no doubt that continuous and periodical health examinations are executed for the ideal labour management.

Here, we should like to make an attempt on a biological approach to the question of verification on the prohibition of chemical weapons from the viewpoint of workers' health control.

The biological effects of organophosphorus compounds depend mainly on their inhibitory effect on the activity of cholinesterase in man, and the inhibition rate is said to run parallel to the dose. It is also known that a change in the activity of cholinesterase in the body takes place by the presence of an organophosphorus compound in a quantity which is too small to produce any clinical symptom, either subjective or objective, in man. Consequently, the measurement of the change is regarded as a useful indicator for checking whether or not the body has been exposed to an organophosphorus compound.

It is to be noted further that the measurement of the activity of cholinesterase in the blood requires relatively simple techniques, since the cholinesterase in the plasma, which is the amorphous part of blood, is more easily affected than that in the other organs or tissues; and moreover the activity level of the cholinesterase in the red cells, which are the solid part of the blood, undergoes an irreversible change. Therefore, the measurement of the change in the activity of the cholinesterase in both plasma and red cells could be used as an effective and practicable method in protecting those who are engaged in activities which have a possibility of exposure to chemical compounds of the organophosphorus family.

GE.71-19161
71-19656

It might be worthwhile mentioning in this context the governmental guideline adopted in Japan for the purpose of maintaining the health of workers in factories producing or using organophosphorus compounds. Under this policy, the diagnosis of such symptoms as a decline in the level of activity of the cholinesterase in the blood, sudoresis or excessive perspiration, miosis or the contraction of the pupil and muscular fibrillation of the eyelids and the face are suggested as criteria for the periodical medical examinations. As mentioned above, among the four criteria of the examinations, a decline in the level of activity of the cholinesterase is the most sensitive. Therefore it becomes the best parameter for the biological change by the effect of organophosphorus compounds. Based on the above guidance, in a case where the activity level of the cholinesterase in the plasma of a worker is found to have dropped by thirty percent or more, he should be transferred to another post or given a certain period of rest for the purpose of natural physical recovery.

According to the above guidance, organophosphorus compound producing plants in our country have made great efforts for the maintenance of workers' health. For example, in the case of workers in organophosphorus pesticide producing plants, the level of activity of the cholinesterase in workers' plasma is measured three or five times before workers start to work in the plant, and therefore, the mean value of the level calculated as before-mentioned is recorded as the individual normal level of activity. The workers' level of activity of the cholinesterase is examined regularly, which varies from every two weeks to two months according to the toxicity of the pesticide which is being produced. We have not had any significant incidents for over ten years up to the present, including the period of producing even parathion which has a high toxicity on mammals. In a general observation, however, under similar conditions of labour management, the decline in the level of activity of the cholinesterase among workers who are engaged in the production of organophosphorus compounds compared with that among workers who are engaged in the production of other chemical compounds is remarkable.

Of course, even when a change is detected in the level of activity of the cholinesterase in the blood, it would be almost impossible to draw from that fact an inference as to the type or the amount of production of the chemical compound. On the other hand, considering the fact that some of the organophosphorus compounds now used for peaceful purposes could be employed as chemical weapons and the plants now producing such compounds could change the nature of production as the need arises, a means of verification which covers a wide range of organophosphorus compounds might be useful.

It should be natural that the facilities of a factory vary according to the degree of the workers' exposure to organophosphorus compounds. However, even in the case of a plant with ideal equipment where the possibility of exposure to organophosphorous organophosphorus compounds might be completely eliminated, it would still be necessary from the medical point of view, as long as there are workers engaged in the production, to conduct a medical examination to completely ensure the safety. In the case of a factory where precaution measures are being taken to such an extent as would completely eliminate the possibility of exposure, no biological change is detected in man. Such special precaution measures themselves would provide useful data for verification purposes.

In accordance with the above considerations, we should like to suggest that this Committee explore the possibility of establishing a method of verification based on the examination of the level of activity of the cholinesterase in the blood of people working in chemical plants engaged in the production of organophosphorus compounds and whether extraordinary safety measures are being taken in such plants.

CONFERENCE OF THE COMMITTEE ON DISARMAMENT

CCD/344
24 August 1971
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JAPAN

Working paper containing remarks of Prof. Shunichi Yamada, the University of Tokyo, concerning the question of verification on the prohibition of chemical weapons, presented at the informal meeting on 7 July 1971

The question of verification of compliance with the prohibition of chemical weapons is considered to be extremely difficult because of the close interrelationship between the production of such weapons and industry for peaceful purposes and also because such production requires only comparatively simple techniques. We have made a careful study with a view to finding technical methods which would enable us to conduct more or less effective verification, which, as we have just mentioned, will involve many complexities, and our past study has made it possible for us to come up with some suggestions in this regard. We believe that a suitable combination of these suggestions, though it may be far from perfect as a method of verification of chemical weapons, will provide us with some clue in our present efforts. This paper tries to examine in more detail our past suggestions and attempt to present them in somewhat more precise manner.

Since the question of verification of chemical weapons in general is much too wide a subject, we have concentrated on the question of verification specifically relating to the production of nerve agents, which are, of course, organophosphorus compounds. Organophosphorus compounds are widely used in industry for peaceful purposes in the production of pesticides and it was from the research in pesticides that the discovery of nerve agents originated. However, unlike in the field of pesticides where efforts have been made to lower their toxic effects on mammals, the development efforts in the field of nerve agents have been directed towards increasing their toxic effect. At the present time the toxic level of nerve agents is reported to be between 1,000 and 10,000 times greater than that of pesticides. It is to be noted that the difference in chemical structure between nerve agents and pesticides lies in the fact that, while sarin, soman, V agents and all other new types of nerve agents, with a few exceptions, contain methyl-phosphorus bonds, no chemical compounds with such bonds are used as pesticides. Therefore, should we be able to establish a highly sensitive method of microanalyzing a methyl-phosphorus bond, it would greatly facilitate the detection of nerve agents.

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Last summer we submitted to this Committee a working paper (CCD/301) in which we stated: "If an emission electrode for a flame thermionic detector is attached to the nozzle of a flame ionization detector in gaschromatography, a high sensitivity will be shown by phosphorus compounds and the minimum amount detectable will be 1×10^{-12} gram." We noted further that, by using this method, it would be possible to detect and identify such known nerve agents as sarin, soman and V agents or their decomposed products which might exist in very small quantities in liquid wastes from the chemical plant concerned, the soil and dust in and around the producing plant, or on the production equipment or the workers' clothes, by checking their retention times.

Generally speaking, nerve agents are methylphosphonic ester halogenides and they are converted to methylphosphonic acid by hydrolysis, with their methyl-phosphorus bond remaining unsevered. If, therefore, we apply the method of gaschromatography mentioned above to such methylphosphonic acid itself or to its methyl or ethyl ester, which has a low boiling point, we might be able to analyse them both qualitatively and quantitatively. Since this method would enable us to verify the presence or absence of known nerve agents as well as those derivatives which have methyl-phosphorus bonds and which cannot be used for purposes other than the production of nerve agents, it would be a useful means of verification of nerve agents, irrespective of whether or not they are already known.

It will hardly be necessary to add that further detailed study of various factors affecting hydrolysis or conditions in applying gaschromatography such as the type of columns to be used, temperature, sensitivity of the instruments, etc., would be required.

If we could establish the method of microanalysis of chemical compounds with a methyl-phosphorus bond, it would be possible to verify whether or not nerve agents are being produced by checking liquid wastes from the suspected plant or even from the atmosphere or river water at a considerable distance from the plant. It goes without saying that the same method, if applied in the case of an investigation with direct access to the suspected plant, would be even more effective. Although we have at present no such data based on actual experiments, we believe that the method we have suggested can be a possible means of verification and if we could visit, together with representatives from other countries, facilities where nerve agents are actually handled and investigate them, it would provide us with valuable information to prove the effectiveness of our concept.

We put forward another suggestion in the same working paper dealing with necessary data which would contribute indirectly, if not directly, to the detection of production of nerve agents. To that end, we suggested the establishment of a system under which countries would report on the statistics for certain phosphorus compounds, giving the

amounts produced, exported and imported and figures for consumption for different purposes. If such a system worked properly, it would contribute to the prevention of the use of those substances for the production of nerve agents. We should now like to attempt to explain this approach in rather more detail.

Nerve agents are organo phosphorus compounds and their manufacture requires phosphorus compounds as the principal raw material as well as many kinds of auxiliary materials or solvents, and the lack of any of them would make production impossible. However, since the auxiliary materials or solvents used in the production of phosphorus compounds are also widely used in the production of many other industrial goods and it would be extremely difficult to trace the flow of these materials, it would be practical to leave them aside for the moment and focus our attention on the flow of the principal raw material, that is, phosphorus compounds. Thus, if we check statistically the amount of production and consumption of yellow phosphorus, which is the starting material, and other various important intermediates in the production of nerve agents, we should be able to ascertain whether or not chemical compounds of the organophosphorus family are being used for the production of nerve agents. Although there are various methods for the production of such agents, which are already known or could conceivable be developed, it would suffice for us to concentrate on some of them from the viewpoint of the possibility of industrial mass production. Important intermediates which are common in those several practicable methods are yellow phosphorus, phosphorus trichloride, phosphorus oxychloride, phosphorus pentachloride and phosphorus pentasulfide, which are all inorganic phosphorus compounds, as well as such organophosphorus compounds as dimethyl or diethyl phosphite, trimethyl or triethyl phosphite and methylphosphonic dichloride or difluoride. With the exceptions of methylphosphonic dihalogenides, those compounds are all used in great quantities as materials or solvents in the manufacturing of agricultural chemicals, pharmaceuticals, perfumes, dyestuffs, vinyl chloride stabilizer or plasticizer. Methylphosphonic acid dichloride or difluoride contains a methyl-phosphorus bond, and belongs to a special group of chemical compounds. It is also considered to be an important final intermediate in the production process of nerve agents and is reported as possessing itself a high toxic effect. Although it is reported that it can be used as a material for the production of polymers containing phosphorus, we do not have any detailed information on it.

In Japan, the statistics on the amounts of the production and consumption of the inorganic phosphorus compounds mentioned above are systematized and made public. Recently a survey has been conducted on the flow of those intermediate materials in Japan. For the information of each delegation, the tables on the amount of consumption of

phosphorus trichloride and phosphorus oxychloride in Japan are attached to this working paper. However, there are not sufficient statistics on organophosphorus compounds other than agricultural chemicals. Furthermore, methylphosphonic dihalogenides, which have no peaceful uses, are, of course, not industrially produced or used in Japan. Accordingly, we believe that, if countries do their best to gather reliable statistics in a more systematic way on the phosphorus compounds and clarify the flow of such compounds, it would make it possible to some extent to check the possibility of their being diverted to the production of nerve agents. Considering the possibility of other methods of manufacturing nerve agents and of the isolation of intermediates, those chemical compounds which we have dealt with might not be the best ones as check points. Also, the question of the relationship between the extent of statistical errors and the amounts of intermediates required for the production of nerve agents might throw some doubts on the usefulness of preparing such statistics. However, if we try to minimize the weakness in the system for the preparation of statistics, and countries concerned are persuaded to make them public, it would result in a situation favouring the prevention of the production of nerve agents and would help to build up mutual confidence among states.

We should like now to deal with a matter which is not necessarily related to any concrete means of verification but designed to prevent the secret development of or research on new types of highly toxic chemical weapons in the future. Last summer, in this Committee, we proposed that the existing chemical compounds with toxic effects above a certain level should be listed as items to be reported upon and that a system should be established so that, when new chemical substances whose toxic effects equal] or exceed that level were discovered, they might be tested by an appropriate international research institute and, if they were found to have toxic effects equal to or above that level, this would be announced. We further suggested as the toxic level to be used as the criterion for this purpose a lethal dose (LD_{50}) of 0.5 milligramme per kilogramme of body weight by hypodermic injection. The basis for this suggestion is that we can safely assume that no chemical substance with a toxic effect equal to or above that level can be used for peaceful purposes.

There are more than ten kinds of chemical compounds with toxic effects equal to or exceeding the suggested level: namely, tabun, soman, sarin, VX, a few organophosphorus compounds which were mentioned in our working paper submitted last summer (CCD/301) and in the Netherlands working paper submitted this spring (CCD/320), such toxins as

botulinus toxin and tetrodotoxin, alkaloids such as aconitine and plant heart poisons such as scillaren. If these substances need to be manufactured as pharmaceuticals or for other peaceful purposes, we would be able to agree to report on the purpose, amount and place of the production.

The criterion lethal dose (LD_{50}) of 0.5 milligramme per kilogramme of body weight would be based on hypodermic injection, the method by which most of our available data have been obtained. However, there still exist such questions as whether the criterion should be based on the same route of absorption as in the case of use as a chemical weapon, that is, inhalation or percutaneous absorption, and whether we should use a uniform method of testing on animals, specifying the kind of animals to be used, their weight and number. On these problems we should like to hear the opinion of pharmacology experts. It would also be desirable to hold further discussions on the question of choosing an appropriate international body which would carry out authoritative tests in this regard.

Table 1

Amount of Consumption of Phosphorus Trichloride (PCl_3) by Purpose in Japan
(tons)

Purpose \ Year	1965	1966	1967	1968	1969	1970 (est.)
Agricultural Chemicals	785 (32.4)	1.182 (40.3)	1.761 (46.0)	2.343 (51.2)	2.714 (53.9)	3.120 (55.7)
Vinyl Chloride Stabilizer	689 (38.4)	877 (29.9)	1.112 (29.0)	1.063 (23.1)	1.229 (24.4)	1.280 (22.9)
Dyestuffs	622 (25.7)	507 (17.3)	677 (17.7)	801 (17.5)	642 (12.7)	493 (8.8)
Pharmaceuticals	77 (3.2)	115 (4.0)	80 (3.1)	122 (2.7)	99 (2.0)	175 (3.1)
Others	249 (10.3)	250 (8.5)	200 (5.2)	250 (5.5)	353 (7.0)	532 (9.5)
Total	2.422 (100)	2.931 (100)	3.830 (100)	4.579 (100)	5.037 (100)	5.600 (100)

Percentage values are given in parentheses.

Table 2

Amount of Consumption of Phosphorus Oxychloride ($POCl_3$) by Purpose in Japan
(tons)

Purpose \ Year	1965	1966	1967	1968	1969	1970 (est.)
Plasticizers	1.263 (41.6)	1.460 (42.2)	1.963 (47.6)	2.376 (48.1)	2.498 (48.5)	2.882 (53.9)
Pharmaceuticals	1.037 (34.2)	800 (23.1)	790 (19.2)	1.017 (20.6)	1.288 (25.0)	1.164 (21.8)
Perfumes	49 (1.6)	45 (1.3)	97 (2.4)	141 (2.9)	134 (2.6)	107 (2.0)
Others	684 (22.6)	1.157 (33.4)	1.270 (30.8)	1.405 (28.4)	1.233 (23.9)	1.199 (22.4)
Total	3.033 (100)	3.462 (100)	4.120 (100)	4.939 (100)	5.153 (100)	5.351 (100)

Percentage values are given in parentheses.

CONFERENCE OF THE COMMITTEE ON DISARMAMENT

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JAPAN

Working paper containing remarks of Dr. Shigeji Suyehiro, the Japan Meteorological Agency, concerning the usefulness of the employment of ocean-bottom seismographs and a universally acceptable means of determining the magnitude of seismic events, presented at the Informal Meeting on 30 June 1971

Introduction

Two topics will be discussed in connexion with the seismological approach to the detection and identification of underground nuclear explosions. The first topic is the employment of ocean-bottom seismographs to improve our present detection capability for seismic events and possibly to increase the capability of identifying explosions from natural events as well. The second concerns a possible and universally acceptable means of determining the magnitude of seismic events.

Detection and identification of seismic events

Great efforts have been made to evaluate the present detection capability for seismic events at teleseismic distances and also to ascertain the extent to which one can apply the identification criteria. In the Report of the SIPRI Seismic Study Group it was reported that the identification criterion, using the ratio of surface wave magnitude to body wave magnitude, is valid to a figure of 4.75 in body wave magnitude. Subsequent studies revealed that this criterion remains valid for events down to about 4.0. An encouraging paper has been produced by American scientists, reporting that events of even smaller magnitude, about 3.5, may still be identified by the same criterion. This means that a hardrock nuclear explosion of less than 1 kiloton could be identified, if we were able to detect it and obtain sufficient data from it for the criterion to be applied.

In addition to the identification criterion of surface wave to body wave, other criteria which depend solely on body waves are now being developed. In Japan, we are pursuing a study of the energy ratio of high frequency to low frequency in P waves to see if this can be used as a positive discriminant and the results are promising at

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teleseismic distances. If results attained so far are borne out by further studies, it will certainly lower the present identification threshold at teleseismic distances, since detecting surface waves, necessary for the application of the criterion of Ms : mb, is at the moment more difficult than detecting body waves. It is also reported that similar studies using P waves alone at short distances are in progress in the United States.

All these recent studies indicate that we have already acquired, or are about to acquire, techniques for discriminating between natural earthquakes and explosions valid to a considerably smaller magnitude range, if sufficient data is made available. And, once our data acquisition system is sufficiently improved to make the identification capability for such small events practical, seismological verification will contribute much more than is possible at present to the conclusion of a treaty to limit or ban underground nuclear weapons tests. To achieve this, our detection techniques must be improved to match the level of identification techniques.

A recent study by our American colleagues using an improved high-gain, long-period seismograph system is encouraging. According to the report, a considerable enhancement is expected in the detection of Rayleigh waves. Yet, our detection capability and azimuthal coverage have definite limits if we depend on teleseismic observation and confine ourselves to the land and a small number of islands. These limits will be substantially lowered if we can extend our systems by placing stations on the ocean floor which accounts for 70 per cent of the earth's surface.

Our recent observations off the Pacific coast of Japan using ocean-bottom seismographs showed that the background noise level at the site is only 1.0 to 1.5 millimicrons in a frequency range 2 to 10 cps, which is less than half that of the quietest land sites. This quietness is neither affected by weather nor is subject to seasonal changes. We fired 1 kilogram of dynamite in the water, and Pn wave from the explosion was clearly recorded at a distance of 100 km. If we apply the empirical law that the recordable distance is proportional to the square root of the amount of explosive, a 1 ton explosion in water should be recordable at a distance of 3,000 km. Background noise at the ocean bottom is naturally higher in the lower frequency range because of microseisms. The extremely low level of background noise in a range 2 to 10 cps, however, should not be overlooked, bearing in mind the fact that the P wave energy from underground explosions inclines toward a higher frequency range as compared with the energy from natural earthquakes.

The instrumentation of our present ocean-bottom seismographs is such that we can send them down to the sea floor to depths of several thousand meters and operate them for a period of 2 to 5 months without maintenance, if we so wish. And, the information stored on magnetic tape can be processed in a very short time. We will require more sophisticated instrumentation to handle a long period pendulum. But, even such an experiment is not technically impossible.

Taking the above points into consideration, it is believed that as far as signal-to-noise ratio is concerned even a single ocean-bottom station would serve to detect seismic events equivalent to a fairly large array station on land. If one could further set up a tripartite array at the ocean-bottom, it would have a certain independent location capability. With the development of identification criteria which use only P waves it will also provide data useful for identification.

We can obtain seismological access to areas exposed to the sea from under the high seas and without intruding into sovereign territory. It is, of course, difficult to obtain data from ocean-bottom seismographs on a real time basis. However, we can use them in such a way that we can bring them to the surface and examine the records only when necessary. Since ocean-bottom stations have such definite merits, it is suggested that we should not exclude the ocean-bottom seismograph from consideration when we contemplate improving or making changes in the global seismological network in the future.

Determination of magnitude

Let us suppose that a threshold has been agreed upon, above which underground nuclear explosions are banned and that the verification of compliance with such an agreement is to be undertaken by seismological methods. As all of us are aware, such a threshold must be defined in terms of the size of seismic events, and we shall have to say whether an event is above or below the threshold. And, this decision would have to be acceptable to all parties as being scientifically valid or, if there is no sufficiently convincing scientific basis, would have to be a matter for international political agreement. Even if we do not establish a threshold, we have to be concerned about the means of determining magnitude, as long as we employ magnitude as a scale to estimate underground explosions.

Determining the magnitude of an earthquake is not like measuring a length or a weight. We have painfully experienced that the magnitude determined at station A can differ by as much as 1.0 from that determined at station B and that such a deviation

from the mean value is not only a function of station but varies depending on each source-station combination. How can we cope with the task using what is, in a sense, an ambiguous quantity? One way to do it is to employ the mean magnitude of many stations and the other is to designate a certain number of stations as key stations and to accept the magnitude at these stations a priori.

As to the first scheme, there is the question of how many stations are needed if the mean magnitude is to be statistically significant. It is generally accepted that the magnitude determined by a single station has a standard deviation of about 0.5. The standard deviation of the mean magnitude decreases in proportion to the inverse square root of the number of stations. If we take the mean of 25 stations, the standard deviation will be 0.1. Magnitudes of this accuracy should be accepted without serious objection.

The following table shows how many stations of the 44 WWSSN stations in Appendix 7 of the SIPRI Report and the 46-station SPZ Network in the Canadian Report of 1970 are found within 90° from the existing nuclear test sites. Stations operated by the nuclear Powers using a particular test site are not included in the number for that site.

Test site	Number of stations in WWSSN (SIPRI)	Number of stations in the 46-station network
Nevada	19	15
Sahara	28	17
Aleutian	26	28
Novaya Zemlya	28	24
Kazakh	26	26
Sinkiang	28	23
Mururoa	11	27

There are sufficient numbers of stations to give statistically significant magnitudes for seismic events in these regions if the event is recorded at all stations. Consequently, the next question is what is the magnitude threshold for earthquakes which can be detected at a distance of 90°. We assume that the minimum readable trace amplitude is 1 mm (peak to zero), the magnification at 1 sec period is 75 K, the amplitude attenuation follows Gutenberg's $B(\Delta)$ curve, that stations could register magnitudes as much as 0.5 below the mean value; then should an event be 5 1/4 in magnitude, it could be detected at all sensitive stations within 90°. Because the sensitivity of many stations is actually higher than assumed here and a safety factor of $dm = 0.5$ is given, this threshold magnitude of 5 1/4 is a conservative estimate.

A similar value was given in the Canadian Report as the identification threshold depending on the existing SPZ and LPZ networks. To obtain Rayleigh wave data for the discriminant of Ms : mb, the identification threshold must be set about 0.8 higher in magnitude than the detection threshold for seismic events. As a consequence, we can obtain sufficient data of P wave for magnitude determination of statistical significance.

On the other hand we have high hopes of lowering the detection threshold for Rayleigh waves to that of P waves owing to recent developments in long-period instrumentation. In this case, the identification threshold will also be lowered. At the same time, however, the number of stations required for detection, location and identification must be reduced. Accordingly the two sets each consisting of a relatively small number of stations used for minor events will be completely different for instance in the case of an event in Nevada and an event in Kazakh, since most Asian and Middle East stations near Kazakh are more than 90° from Nevada. What could we do when we have magnitudes with comparatively low statistical value derived from two such different sets of stations?

We could of course decide to accept them as a first approximation. But, if we wish to have higher accuracy, we must try to find the coefficient of station correction as a function of the station-source combination so as to compensate for the geophysical peculiarities of the earth. Such a task undertaken on a global basis would be tremendous. If, however, we limit the study to combinations of stations of the highest sensitivity and possible source regions of underground nuclear explosions, it should not be too difficult.

It may be most practical to agree to start with the first approximation and then to revise the method of magnitude determination as the study progresses. In any case, there is no doubt that such a comprehensive study achieved through international co-operation would also provide our academic community with valuable fundamental geophysical information.

CONFERENCE OF THE COMMITTEE ON DISARMAMENT

CCD/346
24 August 1971
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MEXICO

Working paper containing a proposal for the inclusion of an additional article in the revised draft convention (CCD/337*) and the draft convention (CCD/338*) on the prohibition of the development, production and stockpiling of bacteriological (biological) and toxin weapons and on their destruction

1. Insert a new Article IX which would read as follows:

"Pending the agreement referred to in Article VIII, the States Parties to this Convention undertake to refrain from any further development, production or stockpiling of those chemical agents for weapons purposes which because of their degree of toxicity have the highest lethal effects. The agents in question are listed in the Protocol annexed to this Convention".

2. Renumber the subsequent articles accordingly.

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CONFERENCE OF THE COMMITTEE ON DISARMAMENT

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MOROCCO

Working paper on drafts CCD/337* and CCD/338* on the prohibition of the development, production and stockpiling of bacteriological (biological) and toxin weapons and on their destruction

1. Amend the text of the tenth preambular paragraph to read as follows:

"Recalling that the General Assembly of the United Nations has repeatedly condemned all actions contrary to the principle and purposes of the Geneva Protocol of 17 June 1925,".

2. (a) The international community should be notified of the execution of the provisions of article II by States Parties possessing bacteriological or toxin weapons as soon as they destroy them or divert them to peaceful purposes. The notice of that operation could be addressed to the Secretary-General of the United Nations and, through him, to all States Parties.

(b) The term "population" in the last sentence of article II should be replaced by the plural "populations".

3. Insert a new article reading as follows:

"Each State Party to this Convention declares its intention to supply, within the limits of its ability, appropriate humanitarian assistance to another State Party which so requests and is exposed by another State, in violation of the provisions of the Convention, to danger resulting from deliberate use or accidental or chance dissemination of biological agents or toxins intended for military purposes".

4. There can be no doubt that the preparation of a viable convention completely and finally prohibiting bacteriological and toxin weapons requires that all States Parties shall be absolutely certain in law that the reservations formulated by many States to the Geneva Protocol of 17 June 1925 have been declared null and void with regard to the prohibition of the use of bacteriological and toxin weapons.

Failure to cancel those reservations would be likely to limit the very scope of the Convention and also to give rise to erroneous interpretations of article VII of documents CCD/337* and CCD/338*.

A legal solution should therefore be found for this problem.

5. It would be highly desirable to reach agreement, immediately after the entry into force of the Convention on the prohibition of bacteriological and toxin weapons, on actual cessation of the production of chemical weapons.

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